Chapter 2 DESCRIPTION AND TIMELINE OF THE INCIDENT

2.1 INTRODUCTION

A basic element of any fire investigation is the development of the timeline of events. Most of the deaths in The Station fire occurred during the evacuation process; hence, a focus of the NIST investigation was on documenting the egress event. Overlaying the progress of the fire, the movement of occupants, and the collapse of the building was the response to the emergency by the fire and police departments and EMS teams in West Warwick and surrounding regions. The intent of this review is to help understand the incident so that the details and occurrences that resulted in the large loss of life can be identified.

The timelines generated in this chapter integrate information from a range of sources to identify the specific events that occurred starting just after 11:07 pm, Eastern Standard Time (EST), Feb. 20, 2003 as well as the order in which they transpired. The timeline is presented as a collection of overviews and snapshots. Overviews describe a series of significant events that occur on the time scale of hours, and serve to place the events in a broader framework. Snapshots focus on a shorter time period, and provide details resolved down to a few seconds.

2.2 OVERVIEW NARRATIVE

About 11:07 pm, the lights were dimmed just prior to the band stepping onto the performance platform. Once the band was on the platform, a set of multi-colored lights were activated and four pyrotechnic devices (gerbs) were ignited to begin the show. The hot particulates which were part of the stream of white sparklers discharged by the gerbs struck both sides and the top of the opening to the alcove where the band's drummer was situated. In a matter of seconds the hot particulates ignited the polyurethane foam on both sides of the platform.

Eleven seconds after ignition, the band noticed the flames and the crowd soon began to realize that the fire was not an intentional part of the show. Within 25 seconds, the flames reached the ceiling on both sides of the platform and spread very quickly across the polyurethane foam. The band stopped playing 30 seconds after the fire had started, and the bulk of the crowd began to evacuate. At approximately 41 seconds, the fire alarm sounded and the emergency strobe lights began to flash.

In less than 60 seconds, the Rhode Island Emergency 911 Center began receiving calls from cell phones reporting a fire, and at about the same time, a West Warwick Police officer who was at the nightclub reported to the police dispatcher that there was a fire inside The Station on Cowesett Avenue. This information was immediately relayed to the West Warwick Fire Department (WWFD). The fire department assigned and dispatched Engine 4, Engine 1, Engine 2, Engine 3, Ladder 1, and Battalion Chief 1 to the fire scene.

Inside the nightclub, the fire continued to develop and in about 90 seconds, the thick black smoke layer appeared to have dropped to within 0.3 m (1 ft) of the main floor of the nightclub. Less than 100 seconds after ignition, the main front doorway became clogged with occupants trying to exit the main floor. Club patrons and staff were breaking windows on the front of the nightclub from the area of the main bar and exiting through the windows. Patrons who had escaped were attempting to extricate people who had been wedged in the front doorway. Shortly after 11:13 pm (5 minutes after ignition), flames were observed extending out of the windows and front doorway.

A few seconds later, Engine 4 arrived at the nightclub and began to pull a hose line to near the front door. Water from the booster tank on Engine 4 was initiated at approximately 11:14 pm (about 6 min into the fire). Additional fire fighters arrived on Ladder 1, Engine 2 and Engine 3. Battalion 1 activated the Warwick Task Force which invoked a mutual aid agreement and dispatched seven additional engine/ladder companies from surrounding communities. Battalion 1 also requested 12 rescues (ambulance units). At approximately 11:22 pm, the West Warwick Fire Chief indicated that he was responding to the fire scene. As the chief was responding, he asked the fire dispatcher to contact Metro Fire Control and implement the Mass Casualty Plan. The Engine 3 officer had set up a triage area in the parking lot of and inside the Cowesett Inn. Engine 4 was applying water on the fire by about 11:24 pm, and at least three hose lines were being used to apply water to the area around the front door by 11:28 pm.

Shortly after 11:32 pm, the fire chief asked the fire dispatcher to contact the State Fire Marshal's Office and request a state fire marshal be sent to the scene. The fire dispatcher advised Triage that Kent County Hospital was overwhelmed with injured victims and that additional victims should be directed to Rhode Island Trauma Center, and Triage responded that the rescue units were using their own discretion as to which hospital the victims were being transported.

At about 11:57 pm , a portion of the nightclub roof appeared to collapse. The fire chief ordered a roll call to account for all fire fighters on the fire ground. Around midnight the Warwick ladder unit raised its ladder, and began applying a master stream to the fire. Approximately ten minutes after the collapse of the main roof section, a portion of the roof around the sunroom collapsed. Sometime between 12:15 am and 1:00 am, February 21,the State Fire Marshal arrived on the fire scene, the incident commander asked the fire dispatcher to cancel additional rescue units, and Triage reported that all patients had been transported.

An overview timeline is shown in Figures 2-1a and 2-1b. Detailed events are summarized in Table 2-1.

2.3 OVERALL INCIDENT TIMELINE

The overall incident timeline was assembled from the video footage inside and outside The Station filmed by WPRI-TV [1], published interviews with occupants by the *Providence Journal*, a video taken by an amateur using a handheld camcorder [2], audio tapes, and fire department records. A high-quality digital version of the TV video was provided to NIST by WPRI. The amateur video [2] was retained as evidence by the Office of the Attorney General for Rhode Island. The Attorney General's staff permitted the NIST investigators to review the tape in the Warwick fire investigation field office. Audio tapes from two sources were also retained by the Attorney General. The first audio set contained digital recordings of cellular phone calls to the Rhode Island Emergency (911) Center. The second audio set included cassette tapes of radio communications from the WWFD. The Attorney General's staff allowed investigation team members to listen to both the 911 and fire department recordings at the field office.

In order to integrate the events on the two videos with the audio recordings, it was necessary to establish a common time reference. Each of the two videos was time-stamped by the camera/camcorder, but the two clocks were not synchronized. The 911 audio recordings were time-stamped, but it appeared that the 911 clock did not match either of the two video clocks. The fire department radio transmissions were not continuously time-stamped, but the central dispatch (fire alarm) periodically inserted a clock time either before or after a transmission. The fire department communication system did not record continuously, but instead recorded only when a radio transmission occurred. The result is that the dispatcher may have inserted a clock time twice in 5 minutes, but then not provided another clock time for 30 minutes.

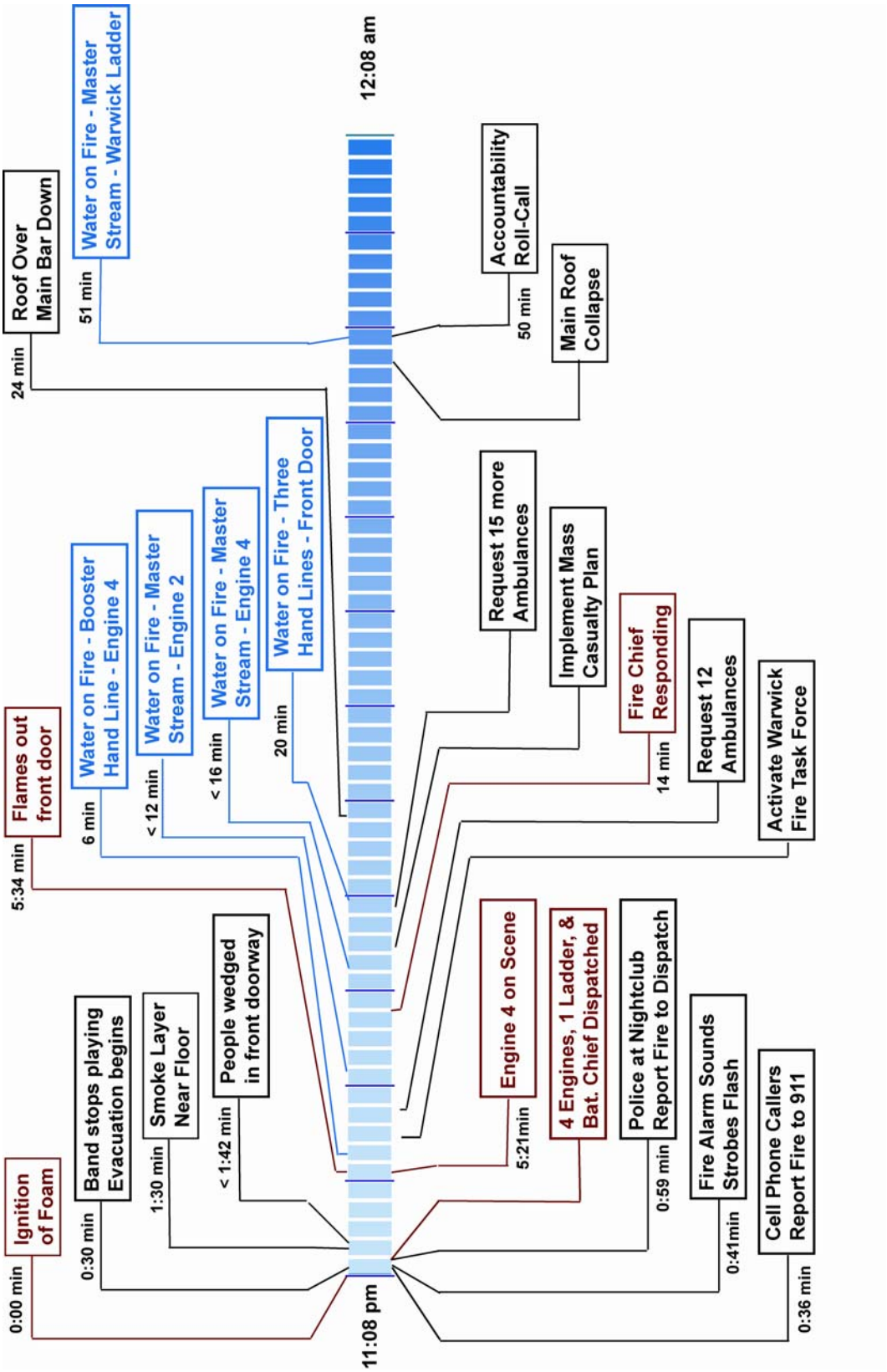

Figure 2-1a. Overview Timeline of The Station Nightclub Fire

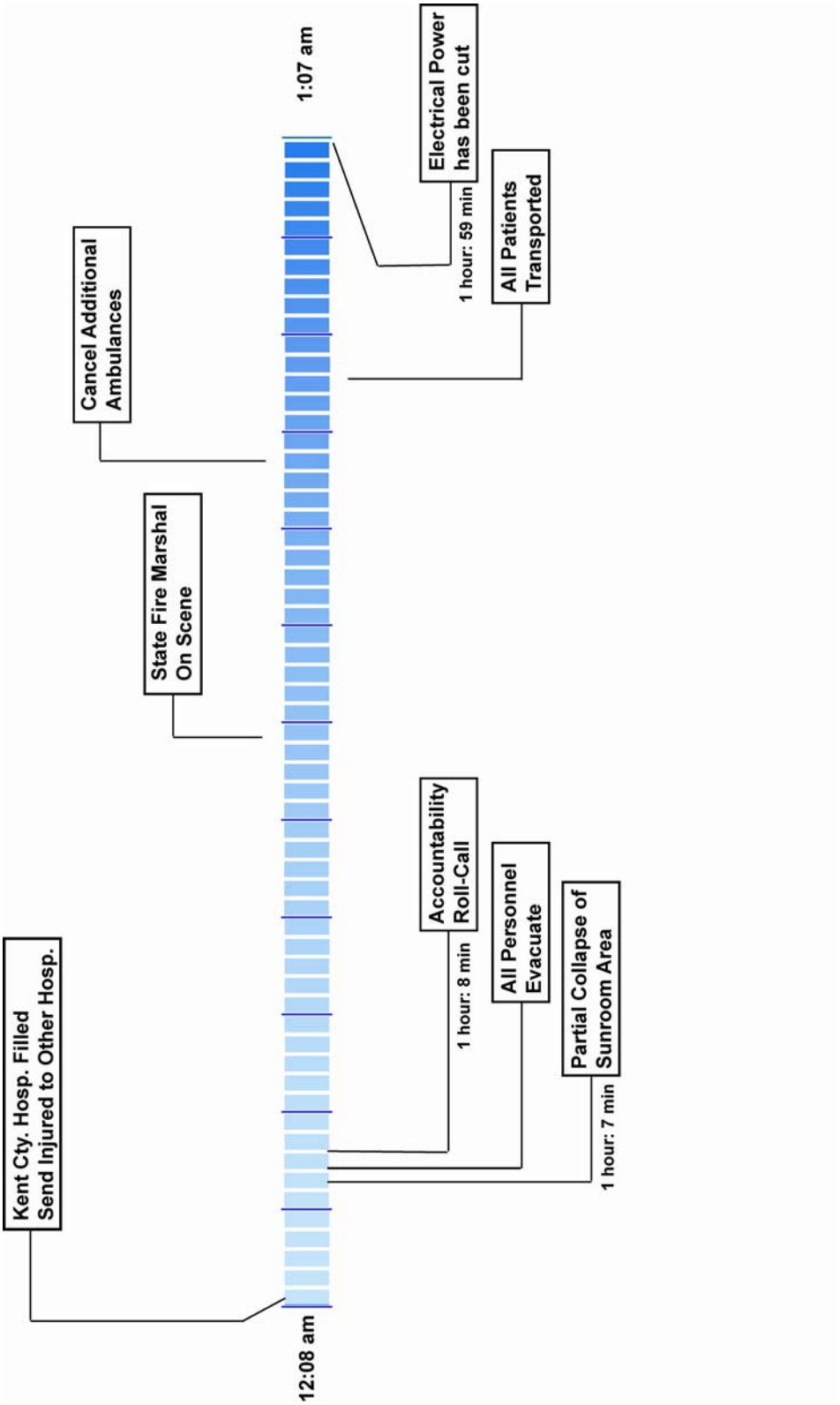

Figure 2-1b. Overview Timeline of The Station Nightclub Fire (cont.)

Table 2-1. Summary of Incident Timeline. (Uncertainty in time is less than +/- 5 s for times showing seconds, and +/- 30 s for times without seconds.)

EST	Fire Time	Description
11:08 pm	0:00:00	First flames on upper wall, left of platform
	0:00:25	Flames touching ceiling on both sides of platform
	0:00:30	Band stops playing, crowd begins to evacuate
11:09	0:00:36	Three Cell phone caller reports fire to 911
	0:00:41	Fire alarm sounds and strobes begin to flash
11:09	0:00:59	Report received of fire at Station Nightclub- Police on Scene,
11:09	0:01:13	Fire alarm recorded at WWFD
	0:01:30	Thick black smoke from pool room windows. Smoke appears to be at floor level inside.
	0:01:42	People piled up in doorway. Smoke pouring out above people.
11:10	0:02:00	E-4, E-1, E-2, E-3, L-1, B-1 assigned/dispatched
	0:04:38	Smoke approximately 0.3 m above floor inside. Flames near door
	0:05:12	First observation of flames out front of building
11:13	0:05:21	Engine 4 on scene. Fire department confirmed on scene, front of building
	0:05:34	Fire Department commences running first hose line (1 ¾”). Flames (2.5 m to 3 m) extending from front exit
	0:05:43	Flames extend from front windows
11:14	0:06	Engine 4 on scene reporting heavy fire
		Water from 1 ¾” hose line directed to the main entrance
		Battalion 1 – activate Warwick Task Force (seven additional engines/ladders) Mutual Aid
		Battalion 1 to Fire Alarm – request 12 rescue units
	0:11	Engine 2 – monitor; knock it down, Master Stream from E-2 on fire at club entrance
11:22	0:14	Fire Chief responding
		Fire Chief 1 to Fire Alarm- Metro Fire Control; Implement Mass Casualty Plan
11:24	0:16	Master Stream off Engine 4 operational – water on center of fire
		any available rescue units, request 15 more

EST	Fire Time	Description
11:28	0:20	Three hose streams, three hand lines streaming on front door area
11:32	0:24	Area/Roof over Main Bar appears down
11:33	0:25	Master Stream off Engine 4 still operating
		Fire Chief 1 to Fire Alarm – need State Fire Marshal asap
11:40		Rescue 2 at Kent County Hospital
		Command to Triage-Triage –need 10-24 stretchers
		Fire Alarm to Triage – Kent County overwhelmed; send to RI Trauma
		Engine 3 to Fire Alarm – repeat; rescues using own discretion; Engine 3 triaging out of here
		Battalion 1- accountability Roll Call – roof down?
11:57	0:49	Middle of Accountability Check- Accountability –Fire Alarm to E-1,E-2,E-3,E-4, Rescue 1, FC, SH
11:58	0:50	Warwick Ladder platform water operating
		Fire Alarm to Command – Kent filled to max; Rescue 1 – approaching scene with doctor from Kent Cty
12:09 am	1:01	Master stream off ladder platform still operating
12:15	1:07	Partial collapse of pool room area begins
12:16	1:08	Warble tone ----- partial collapse; all personnel out
		Accountability Check – E-1, E-2, E-3, E-4, L-1, R-1, E-5, E-7, R-3
12:22	1:14	Master stream from ladder platform still operating
12:23	1:15	Streets appear clear and casualties gone
12:37	1:29	Naragansett Electric Power Truck visible on Cowesett
		State Fire Marshal on scene; Narragansett responding
		Command to Fire Alarm – notify chaplain; cancel additional rescues; cancel LifeFlight helicopter
		Command to Fire Alarm – Chief Rock (Fire Chief 2) and State Fire Marshal meet in front of building
		Safety – cancelled all Rescue, Triage to Fire Alarm – all patients transported
1:06		Rescue 1 clear
1:07		Fire Alarm – Power has been cut

After careful review of the video and audio recordings, links were discovered which allowed all the recordings to be tied to a common clock. West Warwick Fire Department records indicated that the first unit, Engine 4, arrived on the scene at 23:13:22. Engine 4 also notified the WWFD dispatcher over the radio that they were on scene and the dispatcher inserted a clock time of 23:14. While it was not clear that the same clock was used to record the arrival and the dispatcher's time stamp of the radio transmission, the two clock times suggested that both clock times were relatively consistent. It was also possible that the same clock was used for both times and there was a short delay after Engine 4 arrived and their report of being on scene. For development of this timeline, it was assumed that the earlier time, 23:13:22, was the time of arrival of Engine 4.

The arrival time of Engine 4 provided a link to the WPRI video because Engine 4 was visible in the video. A siren could be heard in the background of the WPRI video and seconds later, Engine 4 appeared on the video. The video did not actually show Engine 4 pulling into the parking lot of the nightclub. But 5 minutes 21 seconds after ignition, Engine 4 was shown to be in the parking lot of the nightclub. It was possible that Engine 4 arrived slightly earlier, but was simply not visible in the field of view of the WPRI camera. The arrival time from the fire department records, 23:13:22, was paired to the appearance of Engine 4 in the WPRI video at 5:21 after ignition. This link allowed the fire department records, fire department radio tapes, and the WPRI video to be tied to a common clock.

The fire department radio tapes could be linked to the 911 audio tapes because one of the cell phone callers was relayed from the 911 center to the WWFD. Part of the communication between the cell caller and the WWFD could be overheard on the fire department radio transmissions. Unfortunately, the dispatcher did not insert a clock time on that specific radio transmission, but had inserted a clock time with a preceding transmission. Again, since the radio transmissions were only recorded during actual transmissions, it was not possible to ascertain how much time had passed between the previous clock time insertion and the cell call being transferred to the WWFD. Since each cell call to the 911 center was time stamped automatically, it was possible to link the fire department radio transmissions to the 911 calls.

While the WPRI video captured the first 6 minutes of the fire, the amateur video tape was longer and recorded later in the evolution of the incident. A link between the two video times was found through common events captured on the amateur tape and fire department transmission records. During the fire department response and suppression operations, the WWFD conducted two roll calls of personnel on the fire ground. The first roll call appeared to be associated with the collapse of a significant portion of the nightclub roof. The second roll call was requested when part of the sunroom collapsed. The warble tones used by the fire department to signal a roll call could be heard on both the amateur video tape and the fire department radio transmissions. The fire dispatcher did insert a clock time on the radio transmission announcing the second roll-call. Comparing the time stamp on the amateur video with the fire department radio transmissions identified the amateur video clock to be 3:32 min behind the fire department clock. The amateur video times were adjusted by adding 3:32 min to each time mark.

By linking the fire department radio transmissions to the WPRI video, the 911 cell calls, and the amateur video, all the events were placed on a common timeline. Combining this with the fire department incident record allowed the timeline to reference a single clock time. However, since most of the fire department radio transmissions did not have an inserted clock-time, the timeline shown in Figure 2-1 provides the order in which all of the events occurred, but not necessarily the specific times at which they occurred.

2.4 EVACUATION TIMELINE[1]

Three types of data were used to develop a reasonable and verified description of the evacuation: video footage, photographs and eyewitness statements from the *Providence Journal*. While many newspaper articles reported various details of the incident, the building, and the evacuation, no conclusions were drawn from such sources unless they could be independently verified through review of photographs, video footage, or eyewitness statements.

Short of personal observation, visual evidence can provide investigators with the most reliable depiction of the events of an incident such as this. By considering visual evidence, the investigator does not rely upon the interpretations or views of other observers. Due to inherent inaccuracies involved with eyewitness accounts, visual evidence was given priority in developing the timeline.

The evacuation timeline presented here was assembled with the assistance of Ove Arup & Partners Massachusetts, Inc. Their final report to NIST [3] is quoted freely in this chapter without further reference; however, any conclusions and findings that are presented are solely those of NIST. The timeline includes events specific to the evacuation of the building, as well as those specific to the development of the fire. Various sources were contacted as part of this effort. However, because litigation activities were underway, some potential sources were unable to provide us their information.

The video footage recorded inside and outside of the club before and during the fire by WPRI-TV camera operator [1] was of great benefit to this task. This video showed various activities prior to the incident, as well as the initiation of the fire and portions of the ensuing evacuation. The television news crew's video was used as the primary source of data for this task. Available photographs were used to confirm various details observed in the video, as well as to gain observations of different parts of the club, both before and during the fire.

While eyewitness statements have some drawbacks, they can provide valuable insight, especially since video footage and photographs were not available for all aspects of this incident, or of areas and features of The Station nightclub. In this review, eyewitness statements, primarily as reported by the *Providence Journal* and the *Boston Globe*, were used to draw conclusions regarding occurrences outside of the view of the available visual evidence sources. Unless they could be disproved, eyewitness statements were assumed accurate based on the experience of the eyewitness; conclusions drawn from these were independently verified, where possible. NIST also provided an anonymous toll free hotline and an email address for voluntary input from the general public to generate additional communications, none of which contradicted the published accounts.

Photographs used in this analysis were in digital form, and thus no software was necessary in their processing. The WPRI video was provided to NIST in digital form as well. In order to obtain still images from this video, the media editing software Pinnacle Studio SE, Version 7.15.1, was employed. This software allowed specific individual video frames to be extracted from the video while maintaining image quality.

The timeline that resulted from this analysis, with reference to the still frames from which events were identified (refer to Appendix A for images), is provided in Figures 2-2a through 2-2d . The timeline indicates times in relation to the initiation of fire on the platform, estimated to occur at 11:08:01 pm EST (06:22 video time).

[1] This section taken from the contract report prepared by Ove Arup & Partners Massachusetts [3].

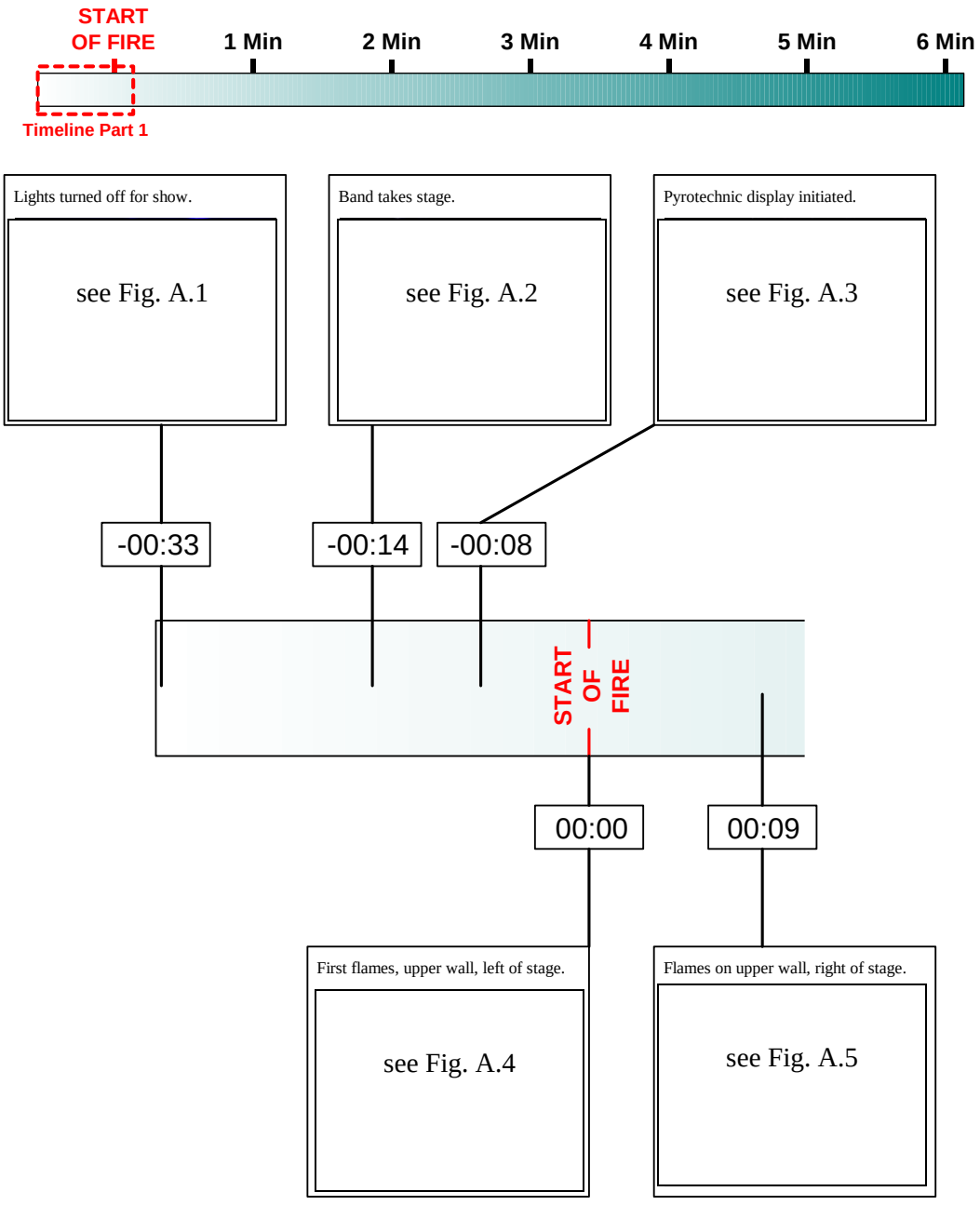

Figure 2-2a. Evacuation Timeline (33 seconds before to 10 seconds after ignition).

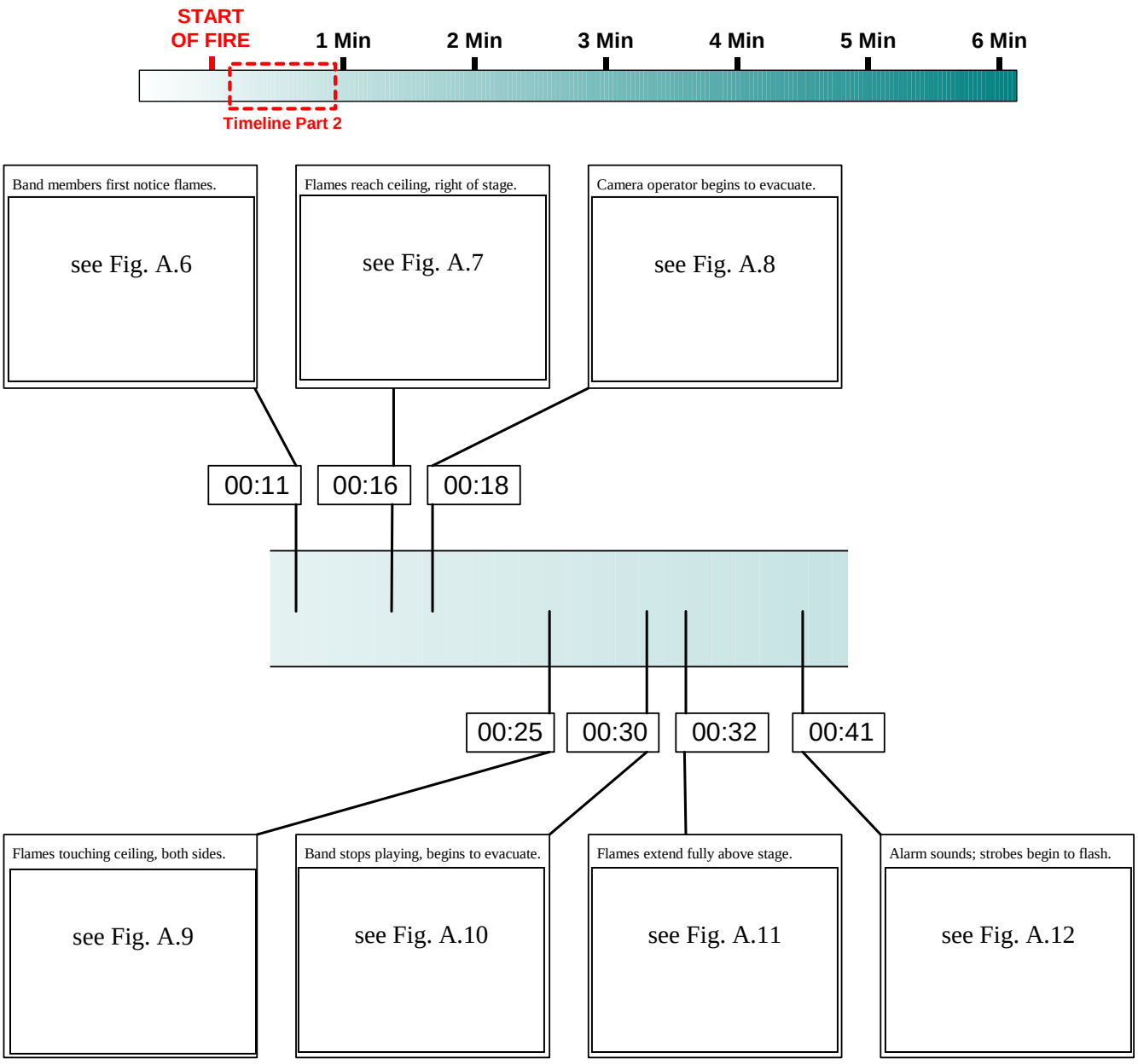

Figure 2-2b. Evacuation Timeline (10 seconds to 50 seconds after ignition).

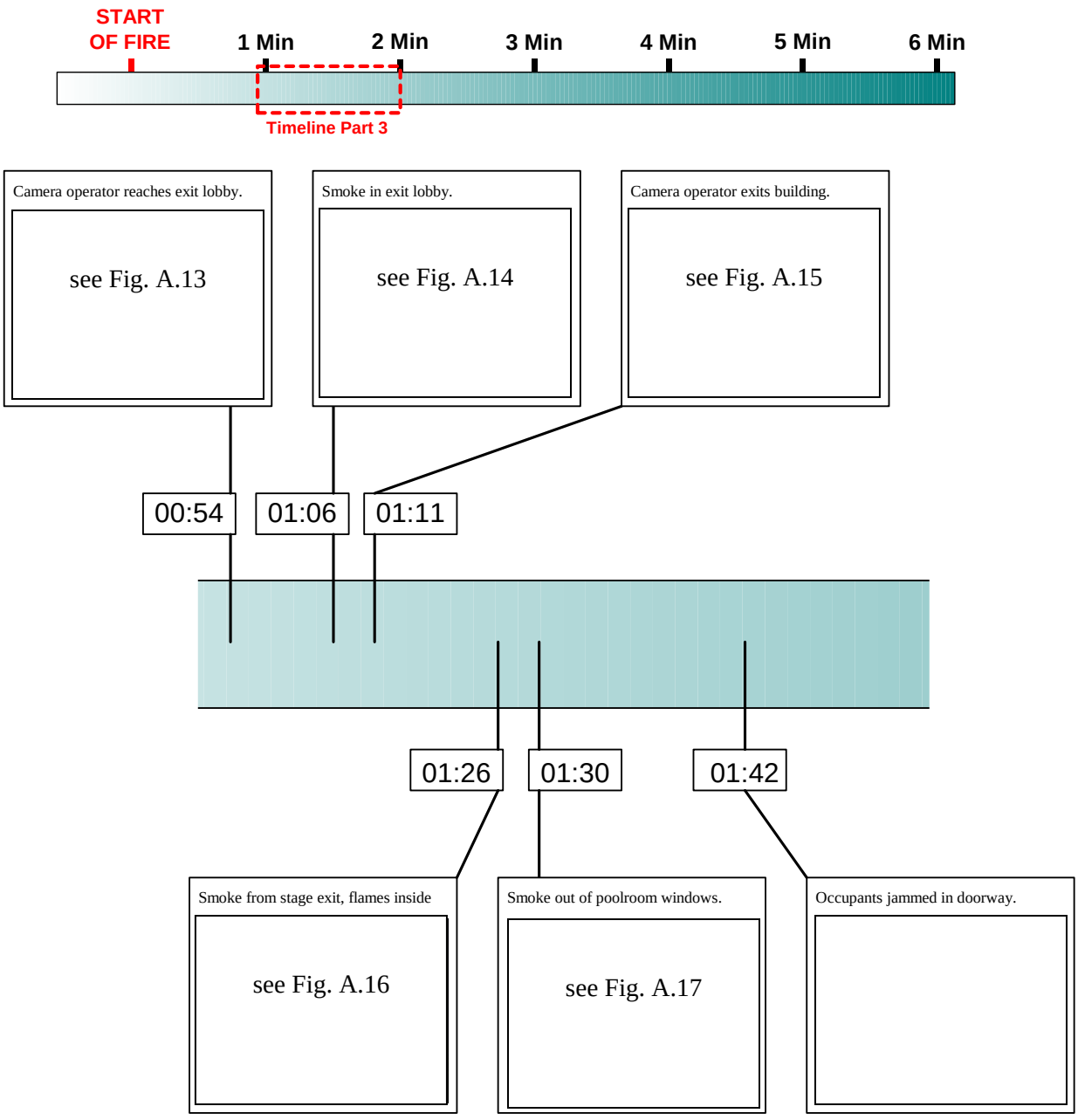

Figure 2-2c. Incident Timeline (50 seconds to 2 minutes after ignition).

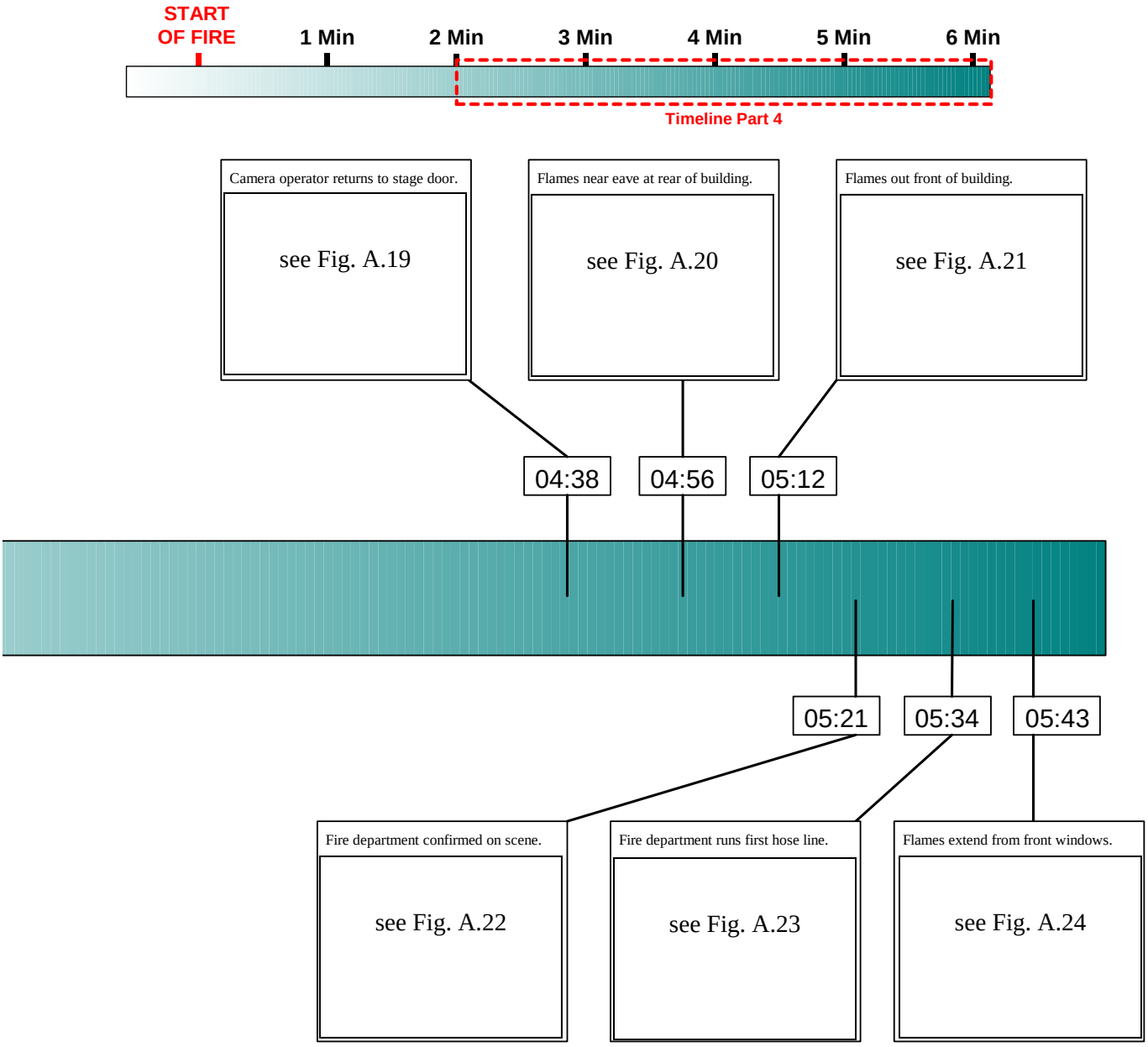

Figure 2-2d. Incident Timeline, Part 4 (2 minutes after ignition to 5:43).

The focus was the time period beginning when portions of the club lights were shut down in preparation for the show, until the videographer placed the camera on the ground in the parking lot and significant flames were seen at the front of the building. The polyurethane foam along the vertical corners of the walls forming the drummers alcove ignited 8 seconds after the pyrotechnic display was initiated, as seen in Fig. 2-2a.. The videographer moved his camera aside 7 seconds later to view the growing fire along the wall better; the band members near the back of the platform noticed the flames 4 seconds later. (Refer to Fig. 2-2b.) The videographer swung his camera around and headed for the exit at the front of the building 18 seconds after ignition of the foam; the first patrons could be seen on the videotape to recognize the fire danger at 24 seconds. Around the time the band stopped playing (30 seconds fire time),

the bulk of the crowd had begun the evacuation process. At 41 seconds the fire alarm could be heard and the strobe seen on the video. (See Fig. 2-2b.)

The videographer made his way to the exit lobby while continuing to capture the movement of the crowd leaving the area around the dance floor. As seen in Fig. 2-2c, he exited the building at 1 minute 11 seconds (fire time) along with a steady stream of occupants. Sometime estimated to be around 1 minute 30 seconds after ignition of the foam, the front exit became blocked with people, and occupants could be seen breaking windows and escaping from the poolroom/sunroom. The result of the crowd crush at the front exit was captured on the video at 1 minute 42 seconds (Fig. 2-2c). The latest time recorded for an occupant escaping from inside the main bar (through a window) was at 4 minutes 8 seconds; however, people stuck in the front entrance are seen in the video to have escaped as late as 5-1/2 minutes into the fire, just before the fire department ran its first hose line (Fig. 2-2d). (One patron claimed to have been pulled from the bottom of the pile by a firefighter considerably later, but this has not been confirmed by the NIST investigation.)

Table 2-2 provides a summary of the events making up the evacuation timeline. “Video Time” refers to the absolute counter time associated with the events as captured on the television crew video, while “Fire Time” refers to the time of events relative to the start of the fire.

2.5 REFERENCES FOR CHAPTER 2

[1] Butler, Brian, Video by WPRI, Channel 12, Feb. 20, 2003.

[2] Personal communication between N. Bryner and M. Stone, Rhode Island Attorney General's office, West Warwick, June 2, 2004.

[3] "Evaluation of Limitations to Egress through Doorways in Emergency Situations," Ove Arup & Partners Massachusetts Inc., NIST contract report #32979, Feb. 18, 2004.

Table 2-2. Summary of Evacuation Timeline Developed from Video Analysis [1, 3] (Uncertainty in time is less than +/- 2 seconds)

Video Time	Fire Time	Description
0:05:49	- 0:00:33	Platform lights turned off for beginning of show.
0:06:08	- 0:00:14	Band first shown on platform.
0:06:14	- 0:00:08	Pyrotechnic display initiated.
0:06:22	0:00:00	First flames on upper wall, left of platform.
0:06:31	0:00:09	Flames on upper wall, right of platform. Pyrotechnic display ends.
0:06:33	0:00:11	Band members first notice flames.
0:06:38	0:00:16	Flames reach ceiling to right of platform.
0:06:40	0:00:18	Camera operator begins to evacuate.
0:06:47	0:00:25	Flames touching ceiling on both sides of platform.
0:06:52	0:00:30	Band stops playing, begins to evacuate.
0:06:54	0:00:32	Flames extend fully across ceiling above platform.
0:07:03	0:00:41	Fire alarm sounds and strobes begin to flash.
0:07:16	0:00:54	Camera operator reaches exit lobby.
0:07:28	0:01:06	Smoke in outer exit lobby.
0:07:33	0:01:11	Camera operator exits building.
0:07:48	0:01:26	Smoke coming out of platform exit. Flames visible inside at this location.
0:07:52	0:01:30	Thick black smoke from pool room windows. Smoke appears to be at floor level inside. Occupants egressing through windows.
0:08:04	0:01:42	Camera operator returns to main exit. People piled up in doorway. Smoke pouring out above people.
0:10:30	0:04:08	Occupants still being assisted through main bar windows
0:11:00	0:04:38	Camera operator returns to platform exit. Smoke ~1 ft above floor inside. Flames near door.
0:11:18	0:04:56	Flames outside building at roof level in rear.
0:11:34	0:05:12	Flames first recorded out front of building.
0:11:43	0:05:21	Fire department confirmed on scene.
0:11:56	0:05:34	Fire department commences running first hose line. Flames extending from main exit ~2.5 to 3 m.
0:12:05	0:05:43	Flames extend from front windows.